H901NXED 8-Port 10G GPON Upstream Card - Official Technical Overview & Hardware Datasheet

PRODUCT IDENTIFICATION

The H901NXED (Model: H901NXED) is a high-density, 8-port upstream interface board engineered exclusively for the Huawei SmartAX MA5800 series multi-service access platforms. As a critical component for next-generation fiber-to-the-home (FTTH) and business access networks, this card provides 10 Gigabit Ethernet (10GE) and Gigabit Ethernet (GE) optical uplink interfaces. It is designed to meet the rigorous demands of carrier-grade operations, enabling seamless aggregation and high-bandwidth upstream transmission for XG-PON, XGS-PON, and GPON access networks .



CORE INTERNAL TOPOLOGY & HARDWARE ARCHITECTURE

The H901NXED is built on a distributed forwarding architecture with a non-blocking switching fabric, providing up to 80 Gbit/s of non-converged upstream bandwidth . Its hardware design emphasizes both performance and resilience. The board is hot-swappable, supporting online insertion and removal (OIR) without impacting system operation, a critical feature for minimizing downtime during network expansion or maintenance .

It features a substantial MAC address table size of 262,143 entries, ensuring efficient handling of large-scale user equipment in dense access environments . The board's design supports advanced synchronization features, including IEEE 1588v2 (Precision Time Protocol) and Synchronous Ethernet (SyncE), which are essential for delivering high-quality time and frequency synchronization for mobile backhaul and other latency-sensitive services .

SWITCHING & FORWARDING SUBSYSTEM CAPABILITIES

- High-Density Uplink: Provides 8 SFP/SFP+ ports that support both 10GE and GE optical modules, offering flexible network design options .
- Non-Converged Bandwidth: Delivers an aggregate upstream bandwidth of up to 80 Gbit/s, ensuring all eight ports can operate at line rate without contention .

- Advanced Traffic Management: Implements robust Quality of Service (QoS) features, including traffic shaping (PIR/CIR), prioritized queuing, and Weighted Random Early Detection (WRED) for optimal congestion management .
- Comprehensive OAM: Supports IEEE 802.1ag and ITU-T Y.1731 for proactive and reactive Operations, Administration, and Maintenance (OAM), enabling detailed frame loss, delay, and delay variation measurements .

OPERATIONAL ADVANTAGES

- Platform Compatibility: Fully interoperable with the MA5800-X2, MA5800-X7, MA5800-X15, and MA5800-X17 OLT chassis, allowing for scalable capacity upgrades .
- Link Aggregation: Supports link aggregation (LACP) to increase bandwidth and provide redundancy for critical uplink connections .
- Jumbo Frame Support: Supports a maximum frame size of 9,216 bytes (with jumbo frame enabled), optimizing throughput for large data transfers .
- Industrial-Grade Reliability: Engineered for harsh operating environments with a wide temperature range of -40°C to +65°C and robust thermal monitoring that includes temperature query, high-temperature alarms, and automatic shutdown to prevent hardware damage .

SPECIFICATION MATRIX

Parameter	Specification
Model	H901NXED
Product Type	8-Port 10GE/GE Optical Uplink Board
Compatible Platforms	Huawei SmartAX MA5800-X2, X7, X15, X17
Ports	8 x SFP/SFP+ (10GE/GE)
Total Upstream Bandwidth	80 Gbit/s (Non-Converged)
MAC Address Table Size	262,143
Maximum Frame Size	2,052 bytes (9,216 bytes with Jumbo Frame enabled)
Synchronization	IEEE 1588v2, 1588ACR, SyncE
High-Temperature Protection	Temperature Query, High-Temperature Alarm, Automatic Shutdown
Dimensions (W x D x H)	23.30 mm x 257.90 mm x 399.20 mm
Weight	0.99 kg
Static Power Consumption	40 W
Maximum Power Consumption	53 W
Operating Temperature	-40°C to +65°C

REGULATORY COMPLIANCE

The H901NXED is designed and tested to meet the stringent requirements of global telecommunications standards. Its compliance portfolio ensures seamless integration into existing carrier networks and adherence to international regulations.

- IEEE Standards: IEEE 802.3ae (10 Gigabit Ethernet), IEEE 802.1Q (VLAN), IEEE 802.1ag (Connectivity Fault Management), IEEE 1588v2 (Precision Time Protocol) .
- ITU-T Standards: ITU-T G.8275.1 (Precision Time Protocol), ITU-T Y.1731 (OAM) .
- Environmental & Safety: The board meets industry standards for electromagnetic compatibility (EMC) and safety, suitable for deployment in environments with temperatures ranging from -40°C to +65°C and humidity levels from 5% to 95% RH (non-condensing) .

